

**TRANSMITTER AND RECEIVER FOR USE WITH AN ORTHOGONAL  
FREQUENCY DIVISION MULTIPLEXING SYSTEM**

**ABSTRACT OF THE DISCLOSURE**

The present invention discloses a transmitter and receiver for use with an orthogonal frequency division multiplexing (OFDM) communications system. In one embodiment, the OFDM communications system includes an OFDM transmitter that generates a training sequence that includes a fractional tone in a guard band thereof and transmits the training sequence via a channel. The OFDM communications system further includes an OFDM receiver that receives the training sequence and employs the fractional tone to obtain a channel response estimate.